

## ADVANTAGE

Issue 27



SMART FLEXIBLE SOLUTIONS

TECHNOLOGY TO THE POINT

**ADVANTAGE** A Magazine from Haitian International CONTENT **ADVANTAGE** A Magazine from Haitian International CONTENT

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### Outlook 2023:

Digital transformation, sustainability and advancing climate change are the key issues of the day. We ask Hai- molding machine impresses with tian management what solutions are intelligent innovations, significant being worked on. The new machine energy and process optimizations tions in terms of energy efficiency processing production lines. and smart features.

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World premiere: MA5 Series

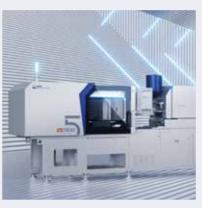
The 5th technology generation of the world's best-selling injection

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World premiere: JU5 Series

The 5th technology generation of the space- and energy-saving two-platen series provides intelligent and innovative analysis and control systems for detailed performance and progeneration 5 promises initial solu- for a maximum flexibility to plastics cess optimization characterize the performance.



World premiere: VE/ZE5 Series

20 years of R&D and experience in building electric Zhafir machines results in the fifth generation intelligent technology. The comprehensive upgrade in hardware and software offers extremely high customer ben-

THINK GLOBAL, 04CARE LOCAL

OUTLOOK 2023

We guestion the Haitian Management

THE NEXT GENERATION Smart flexible solutions

HAITIAN MA5 SERIES Profile of the new servohydraulic generation 5

HAITIAN JU5 SERIES Profile of the new two-

platen generation 5

ZHAFIR VE/ZE5 SERIES Profile of the new electric generation 5

LIVE: CHINAPLAS 2023 Exhibits at a glance

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### **UPCOMING EVENTS**

### **CHINA**

2023-05-31 - 2023-06-02 INTERNATIONAL POWER METALLURGY EXHIBITION, Shanghai 2023-11-27 - 2023-11-30

SHENZHEN DMP, Shenzhen

### **ASIA**

2023-05-13 - 2023-05-13

PLASTIC & RUBBER THAILAND 2023

2023-05-17 - 2023-05-20

PLASPACK Vietnam

2023-06-21 - 2023-06-24

**INTERPLAS THAILAND 2023** 

2023-11-15 - 2023-11-18

PLASTIC RUBBER INDONESIA 2023-11-28 - 2023-12-02

IPF JAPAN2023

2023-12-07 - 2023-12-11 PLASTIVISION INDIA 2023

### **EUROPE**

2023-05-09 - 2023-05-11

KUTENO, Rheda-Wiedenbrück, Germany

2023-05-16 - 2023-05-19

INTERNATIONAL TECHNICAL FAIR, Belgrad, Serbia

2023-05-23 - 2023-05-26

PLASTPOL, Kielce, Poland

2023-09-05 - 2023-09-08

PLAST MILANO, Milano, Italy

2023-09-20 - 2023-09-21

KUNSTSTOFFENBEURS, 's-Hertogenbosch, Netherlands

2023-09-26 - 2023-09-28

INTERPLAS, Brimingham, UK

2023-10-17 - 2023-10-21

FAKUMA, Friedrichshafen, Germany

### **NORTH AMERICA**

2023-05-09 - 2023-05-11

PLAST-EX 2023 Toronto, Canada

### Think global, care local

Haitian International has redefined availability and delivery reliability.

Speed and reliability are core values of the Haitian International Group brand. The global infrastructure network of our own sites and logistics and service partners plays a key role in this.

Congestion at ports, disrupted supply chains – uncertain logistics parameters around the globe. Triggered by the pandemic and exacerbated by political tensions, the quality of supply has not exactly taken a turn for the better. With its "2+6 strategy" and developed synergies within the Group, Haitian International began to rethink logistics years ago and created alternative structures.

### 2+6 = efficient communication, short delivery routes, high availability

The concept is working. The "2+6 strategy" marks the pillars of the global presence of the world market leader: 6 regional headquarters (Singapore, Japan, India, Germany, Turkey, Mexico) in important sales markets where machines are built and/or

assembled, as well as 2 headquarters in Ningbo, East China and Shunde, South China, where development, production and manufacturing are carried out on an even larger scale. The heart of this decentralized Manufacturing Power is a regionalized manufacturing platform, developed across the Group under the Haitian Machinery brand. More importantly, the regional headquarters will enable the Group to create a more efficient platform for communicating with its local customers and to respond quickly to customized solutions.

The network of all production sites, application centers and service bases in 60 countries around the world succeeds in providing customers with optimum supply and support throughout the entire product life cycle. From initial delivery and onsite customizing to product experience, technical application diversity and support.



### High synergies within the Haitian Group

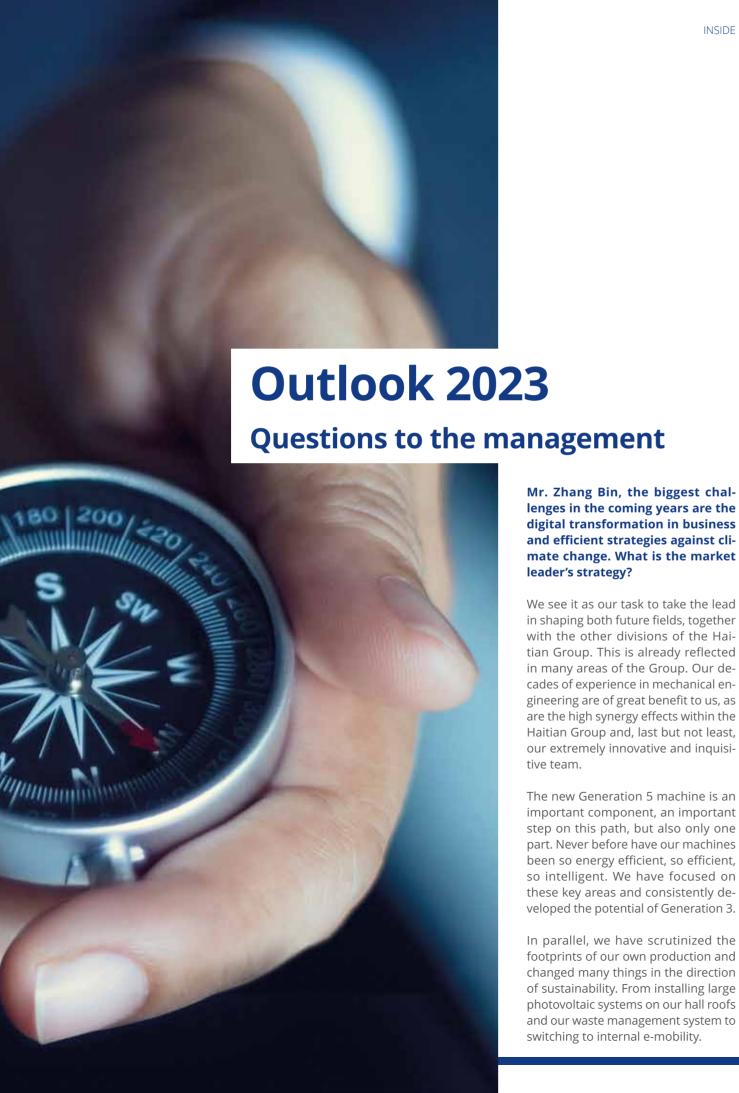
This is possible because Haitian has evolved from a dedicated machine manufacturer to a partner and system provider for intelligent manufacturing in more than 50 years on the market. Because basic principles such as material and process technologies are given priority in the in-house research institute, and because creative platforms bundle the interdisciplinary exchange within the Haitian Group. The goal has always been to strengthen the company's own innovative power and the sustainable development of the divisions.

Today, the Group can offer processors a wide range of solutions - from a single source. In the manufacture of injection molding machines, automation, CNC machines, die casting machines and drive systems. But also in the planning and design of intelligent production lines, up to the complete smart factory.

"We have built an extensive platform within the group to provide innovative power to support the sustainable development of each industry."



Zhang Jianming, visionary and chairman of the entire Haitian Group at the opening of the regional site in Singapore



ant product strategy issues for Haitian International this year?

Mr. Zhang Jianfeng, what are the most import-

First and foremost, the introduction of the G5 technology generation and the constant updating of our technical platform, for sustainable development.

Related to this, providing diversified solutions for different customer needs, from low-level to highend markets. And finally, we want to develop further customized solutions, for different application areas, markets and requirements. That's where we continue to place great emphasis on energy saving and efficiency; these will remain topical issues. In this respect, we will also deepen our commitment to low carbon certification and continue our cooperation with the China Electronic Energy Saving Technology Association to provide CO2 certifications.

Mr. Zhang Jianfeng, with Haitian Drive Systems in the Group, you have a highly innovative partner at your side in matters of drive technology and energy efficiency. How does this benefit the customer?

The close partnership with Haitian Drive ensures our customers the optimum performance of our injection molding machines, through customized drive and motor systems. Haitian Drive also supports us in technical breakthroughs with customized innovations to meet new market requirements or "green" objectives. But the short, stable supply chain of our motors from Haitian Drive should also not be underestimated and is of great value to our customers.

### Mr. Zhang Bin, in Haitian Smart Solutions, you have direct access to a center of excellence in digital transformation. A decisive advantage with a view to the future?

Absolutely. In partnership with Haitian Smart Solutions, we are able to offer turnkey solutions for our customers, and very efficient and cost-attractive solutions at that. With deep integration. All in all, very flexible and economical solutions that give the customer maximum possibilities for future expansion. And in doing so, we can also respond very efficiently to customer-specific needs, whether it's changing production lines or opening up new markets. Ultimately, Digital Transformation is an all-encompassing topic, and by working closely with Haitian Smart Solutions, digitalization at Haitian International - as in all other divisions is accelerated many times over.



Mr. Zhang Jianfeng, Deputy CEO of Haitian Group, Group/Executive Director of Haitian International. CEO of Haitian Plastics Machinery

"We continue to place great emphasis on energy saving and efficiency."



Mr. Zhang Bin, Deputy CEO of Haitian Group, Deputy CEO of Haitian Plastics Machinery Group

"The intelligent functions we have developed are "in line" with the development of our G5 machines."

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Mr. Zhang Jianfeng, what new highlights characterize Generation 5?

Energy savings of up to 20% or more, overall resource conservation, compact machine designs, less space requirements, and just a lot of intelligence functions that bring various benefits in application.

Mr. Fu, Haitian International has already filed more than 150 patents for developments around the new generation. Which development are you most proud of?

We have dramatically reduced the energy consumption of our machines, but at the same time we have been able to further improve the precision and efficiency of the machines. The result is tangible customer benefits: stable production runs, with even less energy consumption.

Electric charging was already available as an option in Generation 3. What changes led to this incredibly high energy saving of an additional 20%+?

The difference is that the previous solution required a decision on the customer side, they had to invest some money for preforming. With the G5 machines, by working with Haitian Drive, we were able to significantly improve the energy savings of the electric charging unit. I don't want to go into technical details at all, the important thing is that this energy advantage now comes as standard, that we pass it on as part of the standard equipment. So customers don't have to invest any extra money to achieve this kind of energy-saving result. Another advantage for their competitiveness, but also for the sustainable development of the market.

Mr. Zhang Jianfeng, the hardware of the machines are hardly changed. Have the possibilities in the mechanical design of an injection molding machine already been exhausted, or are there still groundbreaking things to be expected here?

Changes to the mechanical structure may not be that noticeable, yet our team has worked hard to optimize all mechanical structures and parts down to the last detail. This includes the topological structure, the use of new materials and new processes that result in significant optimization of the machine's performance, such as increasing the screw speed, etc.

But rest assured that there will be some more breakthrough changes regarding injection molding machine design, we are already working on them.

### Mr. Zhang Bin, are significant developments also expected in software design?

"It can be assumed that there will be. With the continuous improvements in control technologies as well as smart technologies, the developments at the software level will be more intense, and the changes more visible. With the increase in performance of control systems, communication technologies and cloud computing technologies, we expect huge development opportunities for injection molding machine software. For example, the introduction of dual-core technology in electric series motors. Nevertheless, a software technology is always closely related to the mechanical structure, in this respect, the improvement of the

machine structure can also support the development of the software."

### Mr. Zhang Jianfeng, injection molding machines are getting smarter, and not just at Haitian. What are you doing differently from your peers?

"Basically, (almost) all competitors are working on intelligent functions. Functions that are slightly different, of course, because each company takes a different approach. The intelligent functions we have developed are "in line" with the development of our G5 machines. For example, Energy Management 2.0, where we have dispensed with conventional sensor technology and instead created a customized mathematical model. Everything inhouse and in close coordination with our sister divisions. And our solution is offered as a standard solution at no additional cost to the customer."

### Mr. Zhang Bin, why did HTI choose to offer most of the smart features as standard?

"Our principle still applies: We want to give our customers the greatest possible competitive advantages. Without imposing additional costs on them. Just Technology to the Point.

The new generation of MA and JU will be tested extensively before they are presented to the public for the first time at Chinaplas 2023.



"Dramatically energy savings plus increased precision and efficiency is a true quantum leap."

Mr. Fu Nanhong, CTO of Haitian International



**TECHNOLOGY TO THE POINT** 











### **WELCOME TO THE 5TH GENERATION**

The ideal image of the future oriented plastics machinery industry is about combining quality and efficiency through digital intelligence to create sustainable solutions. Haitian International is working tirelessly to meet customers' needs by continuously improving its core technology platform and driving innovation at the highest level. The fifth generation of machine technology paves the way to a new stage of development in intelligent manufacturing.

### **SMART TECHNOLOGY**

On the field of intelligent technology, we never stop moving forward. Using Al algorithms and sensing technology, we achieve intelligent optimization of production processes, giving our machines self-awareness, self-adaptation, self-decision-making, and self-reconstruction capabilities.

Our new five-generation machine features a multitude of smart functions, such as smart energy management 2.0, smart mold opening and closing 2.0, smart lubrication, and smart diagnosis and support. Through our many years of experience and intelligent innovations, we are working to further reduce our customers' operating costs and thus increase their production efficiency.

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### **FLEXIBLE INTEGRATION**

Focusing on the development of new generation technologies, our intelligent injection molding machine is equipped with flexible open integration functions as standard, supporting diversified open interface, and achieving efficient interconnection with peripheral devices, automation units, etc., building a smart ecosystem.

We flexibly integrate the upstream and downstream data of the industrial chain into the manufacturing ecosystem to provide enterprises with all-around intelligent empowerment in terms of equipment status, production plan, process control, quality traceability, full life cycle management, energy consumption, decision analysis, etc.

**SUSTAINABILITY** 

As one of the market leaders, Haitian International will prioritize fulfilling social responsibility, protecting the environment, and achieving resource conservation through research and development. We continuously develop energy-saving and consumption-reduction technologies, promote energy-saving device upgrading, reduce carbon emissions, and provide technological innovation and efficient solutions for degradable and recyclable materials.

We continue to be customer-centric, providing application-oriented solutions, providing access to the application of innovative products, empowering sustainable development with economic and environmental benefits, and "forming" a green future.

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## MA5



### The bestseller with XXL upgrade. The face of the new economy.

The 5th technology generation of the world's best-selling injection molding machine impresses with intelligent innovations, significant energy and process optimizations. Thanks to numerous new features and high system compatibility for open

integration, it brings maximum flexibility to plastics processing production lines. Initially a standalone machine - today a smart solution with a system: the Haitian MA5.



### More economical than ever before

Electric pre-molding as standard. Energy-saving insulation of the plasticizing unit. Energy savings of up to 20% for the entire cycle.

### Efficiency

Parallel function for faster cycles. Electric drive for more precise metering.

### **Process**

Efficient oil temperature control with energy-saving water valve and independent circulation and filter system as standard. Greater stability and better control for the entire MA5 series.

### More intelligent than ever before

### HT Clamp 2.0

Intelligent opening and closing 2.0 in the standard. Self-learning algorithm for precise mold movement.

### HT Energy 2.0

Intelligent energy management 2.0 in standard. Refinement of energy consumption display and management. Establishment of an energy saving ecosystem.

### **HT Lubrication**

Intelligent lubrication in the standard. Multi-data algorithm for intelligent lubrication control and intelligent lubrication parameter adjustment.

### **HT Service & Maintenance**

Intelligent diagnosis and help. 2D code alarm and online help.



### **HT Control**

New control panel, new UI design, large screen display. Better usability and interaction between operator and MA5 Series.

### Faster than ever before

### **High-Drive Servo System**

New High-Drive servo system (from Haitian Drive Systems). Even faster response times, even more dynamic.

### Control technology

Latest, fully digital power control with intelligent switching mode. Perfect for integration into smart production lines or MES environments.

### More powerful than ever before

### Plasticizing unit

Completely redesigned plasticizing unit. Now with twice the wear resistance of many components.

### **Material spectrum**

Significantly improved plasticizing performance pushes the limits of what was previously possible. The MA5 Series is ready for new materials.



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### Pioneer of two-plate technology. Pacemaker of the automotive industry.

The 5th technology generation of the space-saving Haitian Jupiter Series combines more than 20 years of experience in the research & development of two-platen technologies. New highlights in energy efficiency and dynamics as well as inno-

vative analysis and control systems for detailed performance and process optimization characterize the performance of the Haitian JU5. Created to transform acute problems into sustainable solu-

### More economical than ever before

Electric pre-molding as standard. Energy-saving insulation of the plasticizing unit.

### Efficiency

Parallel function for faster cycles. Electric drive for more precise metering. Efficient oil temperature control with energy-saving water valve and independent circulation and filter system as standard.



### **Dynamics**

Latest high-drive servo system for even faster response times and even more dynamics. Increased stability and better control for the entire JU5 Series.

### Smarter than ever bevore

### HT Clamp 2.0

Intelligent opening and closing 2.0 as standard. Self-learning algorithm for precise mold movement.

### HT Energy 2.0

Intelligent energy management 2.0 in standard. Refinement of energy consumption display and management. Building an energy saving ecosystem.

### HT Insight

Trouble Shooter with ETHERCAT technology. Fast troubleshooting to reduce costly downtime.

### **HT Control**

Powerful control system from KEBA as standard. New control panel, new UI design, large screen display. Better usability and interaction between operator and MA5 series.



### More compact than ever before

Up to 10% less floor space required. Especially for the medium and large clamp force classes. Less production and operating space required.

### Mold room

Large mold space with good accessibility from all sides. Ideal for large dimensions/cavities and complex geometries.

### Scalability

Improved scalability of the machine layout. More free space due to optimized selection of automation options.

### Stronger than ever before

### Robustness

The plasticizing unit has been completely redesigned, and the wear resistance of the plasticizing parts has been doubled.

### Stability

The entire machine runs faster and more smoothly. The drying cycle reaches the international top level.

### Decarbonization

Improved plasticizing has pushed the limits of what was previously possible in materials processing - in favor of "green" materials. The new JU5 Series: carbon pioneer driving green values.

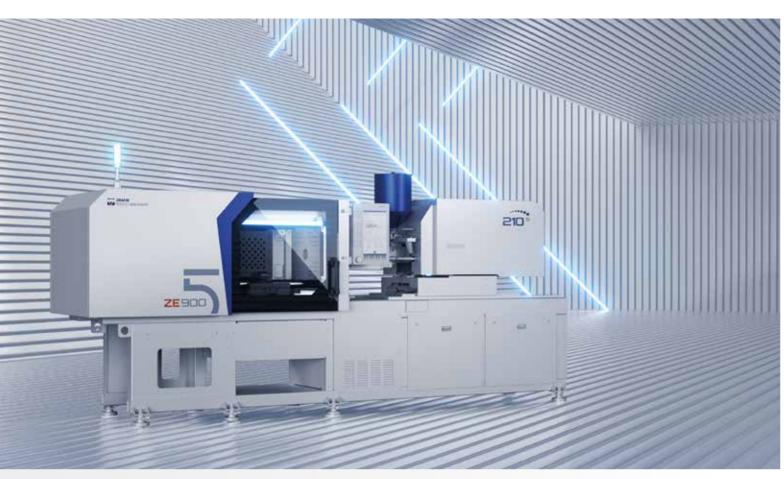
### Power control

Latest J6 digital control technology with intelligent switching mode. Perfect for integration into smart production lines or MES environments.

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### VE5 ZE5



### The smart power of the electric future.

molding has never been as effective and forward-looking as Zhafir's 5th technology generation. Whether it's the fully electric Venus Series - now also up to 13,800 kN - or the Zeres Series host of new, intelligent functions.

Smarter, more precise, faster: Electric injection with integrated servo hydraulics: the comprehensive upgrade package has extremely extended and increased the customer benefits of both electric series. The software upgrade alone offers a

### More precise than ever before

- · Improved drive performance and control accuracy to handle highly complex working conditions with ease.
- Injection speed repeatability of up to 0.01%.
- · Reduced injection acceleration and deceleration bandwidth by up to 60%.

### Faster than ever before

- Higher opening and closing speeds of up to 20%.
- Servo control loop now at 4x speed.
- Increased ejection speed: 400 mm/s.

### Smarter than ever before

### HT Energy 2.0

Intelligent energy management 2.0 as standard. Refinement of energy consumption display and management. Building an energy saving ecosystem.

### HT Clamp 2.0

Intelligent opening and closing 2.0 in standard. Self-learning algorithm for precise mold movement.

Intelligent configuration of the actual clamping force, individually according to molded part characteristics. Automatic determination of the required minimum clamping force significantly reduces clamping force, lowers energy consumption and maximizes mold protection.

Even more sensitive than the 3rd generation. Even faster response time to minimal load deviations during the closing process.

### HT Inject

**HT Protect** 

Intelligent adjustment and process optimization during injection with regard to different modes

### **Extensive upgrade** of the control system

### Drive

Complete upgrade of drive performance through more versatile EtherCat communication.

### Control

The control system has been upgraded with a powerful dual-core processor that, together with the large touchscreen, doubles operating speed.

### Flexible

Free Programming 2.0 in Forming. Easily adapt the high-precision and stable solution to the flexible changes of the process.

### **Connectivity Plus**

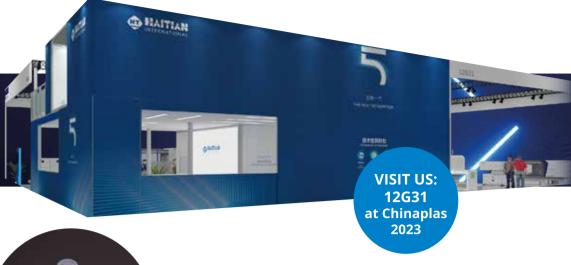
Intelligent data interface, based on OPC-UA and Euromap 77, 82 for barrier-free data exchange and seamless integration into smart manufacturing environments.

### Usability

Based on the new UI design, the human-machine interface is clear and transparent, providing an intuitive and pleasant working experience.



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### VE1500V-300h

### World premiere: fully electric solution with medical package

The medical market is exceptional in every respect, and it is changing rapidly. Reliability and consistency are extremely important: Maximum possible efficiency and tailor-made quality are the top priorities. The fully electric VE Series produces provides clean and high-quality precision molding.





Application: Heparin cap Part weight: 0.64g Material: ..... MABS Cavities: ..... 24

Cycle time: .. 17s

Specials: ......Clean room solutions



### ZE1900V-640

### World premiere: electric solution with tandem mold

Integrated hydraulics (optimal for molds with core pulls), constant injection up to 500 mm/s, short dry cycle times. Equipped with T-Mold and In-Mold Compression technology for highest efficiency by reducing mold pressure and improving pressure holding capacity.

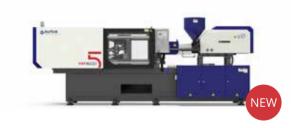




**Application:** 14mm/10mm thick-walled convex lens

Part weight: 14.3g+13g Material: ..... PMMA Cavities: ..... 4+4 Cycle time: ...150s

Specials: ......In-mold compression technology



### MA1200V/400

### World premiere: bestseller servo-hydraulic solution

Sustainable solutions in the field of alternative materials are in demand as never before. The new generation of machines is ready for the use of recyclates of all kinds. In cooperation with Haitian Smart Solution and Haitian Laser Machinery we show a manufacturing cell with downstream assembly by using 100% recyclates from re-mall.



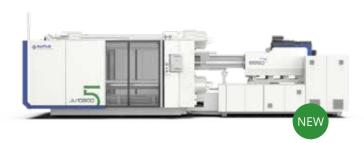


**Application:** Wireless charging station

Part weight: 31g+18g Material: ..... RABS Cavities: ..... 1+1 Cycle time: .. 42s

Specials:...... Automation by Haitian Smart Solutions,

**Recycled materials** 



### JU10800V/8950

### World premiere: space saving two-platen solution

In terms of its complexity, the automotive industry is probably the market with the broadest range of applications. Given this diversity of parts and production, T1 suppliers and their network are under increasing pressure. Efficiency and cost control are top priorities. The JU5 Series is compact, robust, reliable and offers enough clearance for complex assemblies. Supported by Flex-Flow technology from Oerlikon HRSflow, the compact and robust JU5 can produce three parts in different sizes and get ideal quality for automotive parts in a reliable and efficient way.





**Application:** Automobile door panel, integrated parts

**Part weight:** 607g+348g+55g

Material: ..... PP Cavities: ..... 1+1+1 Cycle time: .. 56s

Specials:..... Automatic cut sprue













### We care

The green guiding principle at Haitian.

Haitian International's ESG Report 2022 had already announced it, and now implementation chasing of materials (shorter transport routes, lower is in operation: one of the largest production facilities, the 160,000 sqm Tongtu Road plant on China's east coast, is becoming a Green Energy **Lighthouse Project being equipped with mod**ern photovoltaics.

The aim is once again to optimize energy management within the company. The installation of the first internal PV system to conserve resources is just one of many environmental protection measures that fit together like puzzle pieces to turn it into a comprehensive sustainable concept. For example, the switch to LED lighting in the plants has so far resulted in its own production costs through drastic savings in

energy savings of 60%, and the decentralized pur-CO<sub>2</sub> emissions) is just as important as measures to reduce waste or the construction of in-house water treatment plants, which enable around 12,800 tons of condensate to be reused every year.

### Combining environmental protection and cost reduction

On the one hand, Haitian is thus supporting the global drive for greater sustainability through the use of green technologies. At the same time, the entire Haitian Group is pursuing the goal of reducing



energy and resource consumption. Although the issue of sustainability is becoming increasingly important, the topic of energy efficiency has always run like a "green thread" through the history of the machine manufacturer. Demonstrably with success, for example through the development of the significantly energy-efficient drive technology of the worldwide bestseller (Haitian Mars Series, 2006) or through the early development of future-oriented, fully electric machine solutions (Zhafir Venus Series, 2007).

"We care" – the green guiding principle of the Haitian Group is formulated quite modestly, but the potential for successively optimizing energy and resource savings is enormous, simply though the installation of more PV systems. The TongTu Lu II PV System covering a total roof area about 140,600 sqm, will generate 25 million kWh of electricity, resulting in a CO, reduction of around 24,500 tons, making it the largest project in Ningbo to date. The project was completed within 3 months. At the South China headquarter, workshop No. 1 was equipped with 36,000 sqm and 62 MWp PV system. As planned, Haitian started the similar BIPV project at Zhafir Ningbo from October 2022 and later at other 3 plants. The total investment would be around RMB 100 Mio, which will generate another 33 million kWh clean energy power for the entire company per year.





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